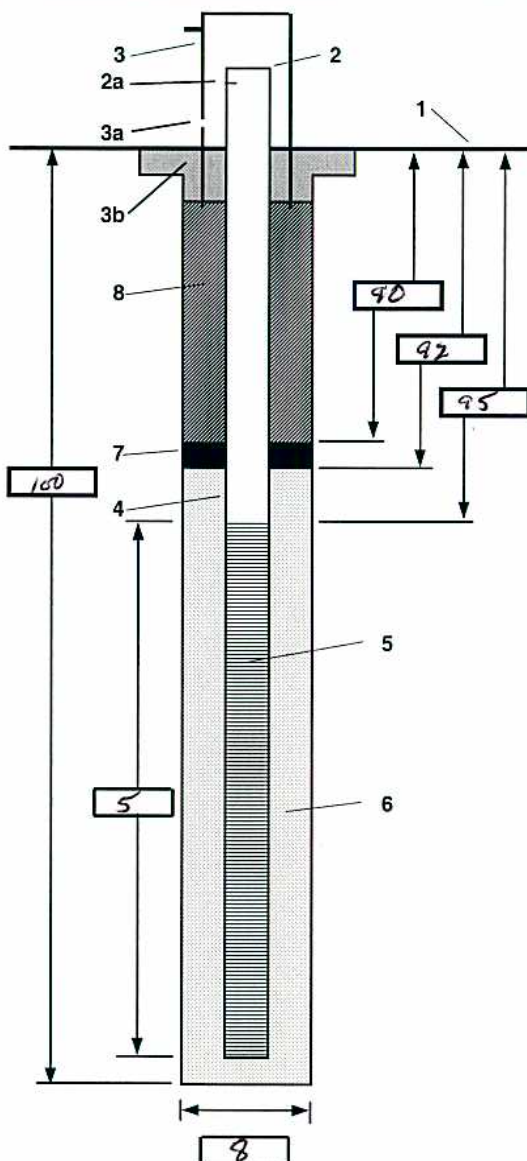




PROJECT NUMBER	WELL NUMBER	SHEET 1	OF 1
A0073C0015B			
WELL COMPLETION DIAGRAM			

PROJECT: S.L. 40 / A0073 LOCATION: _____
 DRILLING CONTRACTOR: WDC
 DRILLING METHOD AND EQUIPMENT USED: HSA CMG85
 WATER LEVELS: _____ START: 6/10/05 END: 6/10/05 LOGGER: E Hoes



- 1- Ground elevation at well _____
- 2- Top of casing elevation
a) vent hole? _____
- 3- Wellhead protection cover type
a) weep hole? _____
b) concrete pad dimensions _____
- 4- Dia./type of well casing 1" Sch 80 PVC
- 5- Type/slot size of screen 1" Sch 80 PVC w/ 0.020" slot
- 6- Type screen filter
a) Quantity used #3 Monterey Sand
- 7- Type of seal
a) Quantity used Med. Bentonite Chips
- 8- Grout
a) Grout mix used 3-5 % bentonite cement
b) Method of placement Grout
c) Vol. of well casing grout 18 bags
- Development method N/A
- Development time N/A
- Estimated purge volume N/A
- Comments _____



PROJECT NUMBER

186368.02.07.01

BORING ID:

40C001SB

Sheet 2 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350' N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85

WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

DEPTH BGS (ft)	INTERVAL (ft)		STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION:		COMMENTS:	
	RECOVERY	TYPE-# <small>SS=Split Spoon ST=Shelby Tube</small>		6-6-6 (in) (N)	SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
12.5					-		
13					-		
13.5	13.5-15	----	-----	-----	ML - SILT (ML), light yellowish brown (10YR 6/4) moist, fine, - silt with clay		
14					-		
14.5					-		
15	15-17	----	-----	-----	SW - WELL GRADED SAND (SW), moist, dense, fine to very coarse - sand		
15.5					-		
16					-		
16.5					-		
17	17-20	5/5'	-----	-----	ML - SILT (ML), light yellow/brown (10YR 5/4), dry to moist, - stiff, silt with some clay		
17.5					-		
18					-		
18.5					-		
19					-		
19.5					-		
20	20-24	5/5'	-----	-----	ML - Same as above (ML)		
20.5					-		
21					-		
21.5					-		
22					-		
22.5					-		
23					-		
23.5					-		
24	24-32	----	-----	-----	ML - Same as above (ML)		
24.5					-		
25					-		



PROJECT NUMBER

186368.02.07.01

BORING ID:

40C001SB

Sheet 3 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350' N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85

WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

DEPTH BGS (ft)				STANDARD PENETRATION TEST RESULTS		CORE DESCRIPTION:		COMMENTS:	
INTERVAL (ft)		RECOVERY				SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
		TYPE-# SS-Split Spoon ST-Shelby Tube		6-6-6 (in) (N)					
25.5							-		
26							-		
26.5							-		
27							-		
27	27-27	----	-----	-----			ML -		Could not get core barrel open
27		----	-----	-----			ML -		
27.5		5/5'					-		
28							-		
28.5							-		
29	29-32	----	-----	-----			CL - LEAN CLAY with SAND (CL), light yellowish brown (10YR 6/4), - moist, dense, clay with ~15% fine sand		
29.5							-		
30							-		
30.5							-		
31							-		
31.5							-		
32	32-34	----	-----	-----			ML - SILT (ML), light yellowish brown (10YR 6/4), moist, stiff, - silt		OVM = 0.0 ppm. Low, dry strength.
32.5		5/5'					-		
33							-		
33.5							-		
34	34-37	----	-----	-----			SM - SILTY SAND (SM), light yellowish brown (10YR 6/4), moist, - dense, weakly cemented fines, sand with silt		
34.5							-		
35							-		
35.5							-		
36							-		
36.5							-		
37	37-40	----	-----	-----			SP - POORLY GRADED SAND (SP), reddish yellow (7.5YR 6/6), moist, - dense, fine to medium, subangular sand		OVM = 0.0 ppm. Decreased cementation.
		5/5'							



PROJECT NUMBER

186368.02.07.01

BORING ID:

40C001SB

Sheet 4 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350' N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85

WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

DEPTH BGS (ft)	INTERVAL (ft)		STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION:		COMMENTS:
	RECOVERY	TYPE-# SS-Split Spoon ST-Shelby Tube		6-6-6 (in) (N)	SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	
37.5					-	
38					-	
38.5					-	
39					-	
39.5					-	
40	40-42	----	-----	-----	SP - AGGLOMERATE SANDSTONE	
40.5					-	
41					-	
41.5					-	
42	42-45	----	-----	-----	SP - Wet, weakly cemented agglomerate (volcanic sandstone),	
42.5		5/5'			- clasts up to 5cm of volcanic tuff which is weathering to	
43					- clay in sand	
43.5					-	
44					-	
44.5					-	
45	45-47.5	----	-----	-----	SP - Same as above	
45.5		2.5/2.5'			-	
46					-	
46.5					-	
47					-	
47.5	47.5-49	----	-----	-----	SP - POORLY GRADED SAND with CLAY (SP), pale brown (10YR 6/3),	
48		2.5/2.5'			- wet, dense, fine to medium sand with ~10% clay	
48.5					-	
49	49-51	----	-----	-----	ML - SILT (ML), bluish gray (7.5YR 6/2), wet, dense, silt	Hydropunch 47-50'. Sample AOC73C001HP49
					-	



PROJECT NUMBER

186368.02.07.01

BORING ID:

40C001SB

Sheet 5 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350' N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85

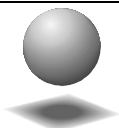
WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

DEPTH BGS (ft)				STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION:		COMMENTS:	
	INTERVAL (ft)	RECOVERY			SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.		
			TYPE-# <small>SS=Split Spoon ST=Shelby Tube</small>					
49.5					-			
50		----	-----	-----	ML -		Core appears to be weathered volcanic tuff	
50.5					-			
					-			
51	51-54	----	-----	-----	CL - CLAYSTONE (CL), pink (5YR 7/4), wet, hard claystone			
51.5		4/4'			- moderately cemented, may be volcanic tuff			
52					-			
52		----	-----	-----	CL -		Core horizontally fractured in core barrel. Yellowish brown area with concentric laminations, may be a reduced clast in the tuff, color change to brownish gray, less cemented	
52.5					-			
					-			
53		----	-----	-----	CL -			
53.5					-			
					-			
54	54-56	----	-----	-----	MLCL - SILT AND CLAY (ML-CL), light brownish gray (10YR 6/2), wet,			
54.5		1/1'			- hard, weakly cemented, silt and clay			
55					-			
55.5					-			
					-			
56	56-60	----	-----	-----	SP - SILTY SAND (SP), light gray (10YR 7/2), wet, dense, weakly			
56.5		2.5/2.5'			- cemented, fine sand with silt			
57					-			
57		0.5/2.5'			SP -			
57.5					-			
58					-			
58.5					-			
59					-			
59.5					-			
					-			
60	60-65	----	-----	-----	SP - POORLY GRADED SAND (SP), brownish gray (2.5Y 6/2), wet,		Subangular sand	
60.5		2/2.5'			- dense, medium sand			
61					-			
61.5					-			



CH2MHILL

PROJECT NUMBER

186368.02.07.01

BORING ID:

40C001SB

Sheet 6 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350° N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85

WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

DEPTH BGS (ft)				STANDARD PENETRATION TEST RESULTS		CORE DESCRIPTION:		COMMENTS:	
INTERVAL (ft)						SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
RECOVERY									
		TYPE-# SS-Split Spoon ST-Shelby Tube		6-6-6 (in) (N)					
62		----	-----	-----		-			
62.5		2/2.5'				SP -			Weakly cemented agglomerate at 41', rounded clasts of pale brown tuff with mafic phenocrysts - weathered up to 5 cm diameter in fine grained matrix. Hydropunch 60-63', Sample AOC73C001HP62
63						-			
63.5						-			
64						-			
64.5						-			
65	65-70	----	-----	-----		ML - SILT (ML), pale brown (10YR 6/3), wet, stiff, silt			
65.5		4/5'				-			
66						-			
66.5						-			
67						-			
67.5						-			
68						-			
68.5						-			
69						-			
69.5						-			
70	70-73	----	-----	-----		SW - WELL GRADED SAND (SW), red (2.5YR 4/6), wet, dense, fine to			
70.5		5/5'				- coarse sand			
71						-			
71.5						-			
72						-			
72.5						-			
73	73-76	----	-----	-----		SP - POORLY GRADED SAND (SP), red (2.5YR 4/6), wet, dense, fine		Subangular sand	
73.5						-			
74						-			



PROJECT NUMBER

186368.02.07.01

BORING ID:

40C001SB

Sheet 7 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350' N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85


WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

DEPTH BGS (ft)				STANDARD PENETRATION TEST RESULTS		CORE DESCRIPTION:		COMMENTS:	
INTERVAL (ft)		RECOVERY				SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.	
		TYPE-# SS-Split Spoon ST-Shelby Tube		6-6-6 (in) (N)					
74.5							-		
75		----	-----	-----			SP -		Hard drilling 75-80'
75.5							-		
76	76-78	----	-----	-----			SWSC - WELL GRADED SAND with CLAY and GRAVEL (SW-SC), reddish		
76.5							- brown (5YR 4/4), wet, dense, fine to coarse sand with		
77							- gravel to 2cm		
77.5							-		
78	78-85	----	-----	-----			ML - SILT (ML), reddish yellow (5YR 6/8), moist, hard, silt		
78.5		5/5'					-		
79							-		
79.5							-		
80		----	-----	-----			ML - SAND (?)		
80.5		0/2.5'					-	Easy drilling. No recovery, driller thinks it is sand.	
81							-		
81.5							-		
82							-		
82.5	82.5-85	----	-----	-----			ML -		
83		0/2.5'					-		
83.5							-		
84							-		
84.5							-		
85	85-87	----	-----	-----			SWSC - WELL GRADED SAND with CLAY (SW-SC), brown (7.5Yr 5/4), wet,	Hydropunch 85-89. Sample AOC73C001HP87.	
85.5							- dense, fine to coarse sand		
86							-		
86.5							-		
							-		

		PROJECT NUMBER		BORING ID:	
		186368.02.07.01		40C001SB	
<div>Sheet 8 of 9</div> <h2 style="text-align: center;">SOIL BORING LOG</h2>					
PROJECT: Beale AFB-AOC 73 Triad Investigation				LOCATION: ~350° N of Warren Shingle Road, ~300°W of Hutchinson	
ELEVATION: 110.8		NORTHING: 2168112.5		EASTING: 6730631.7	
DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85					
WATER LEVELS: 45.35' from TOC		START: 10/13/2004		END: 10/14/2004	
LOGGER: R. Pexton					
DEPTH BGS (ft)	INTERVAL (ft)		STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION:	
	RECOVERY	TYPE-# <small>SS-Spill Spoon ST-Shelby Tube</small>		SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS:
87	87-90	5/5'	6-6-6 (in) (N)	CLML - LEAN CLAY and SILT (CL/ML), pale yellow (2.5Y 7/3), moist, - and yellowish red (5YR 3/6)	
87.5					
88					
88.5					
89					
89.5					
90	90-100	5/5'		CLML - LEAN CLAY and SILT (CL-ML), yellowish red (5YR 5/6), wet, - stiff clay and silt	
90.5					
91					
91.5					
92					
92.5					
93					
93.5					
94					
94.5					
95				CLML - SAND (?)	Easy drilling - driller thinks it is sand. No recovery
95.5					
96					
96.5					
97					
97.5					
98					
98.5					
99					



PROJECT NUMBER

186368.02.07.01

BORING ID:

40C001SB

Sheet 1 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350° N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85

WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

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	INTERVAL (ft)				SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.		
	RECOVERY	TYPE-# <small>SS-Split Spoon ST-Shelby Tube</small>	6-6-6 (in) (N)					
0		---	-----	-----	NA -		Clear, sunny, hand auger to 5'	
0.5					-			
1					-			
1.5	1.5-5	---	-----	-----	CL - LEAN CLAY with SAND (CL), brown (7.5YR 4/4), moist, firm			
2					- clay			
2.5					-			
3					-			
3.5					-			
4					-			
4.5					-			
5	5-6	---	-----	-----	CL - LEAN CLAY with SAND (CL), brown (7.5YR 4/4), moist, firm			
5.5					- clay			
6	6-7	---	-----	-----	SC - CLAYEY SAND (SC), brown (7.5YR 4/4), moist, dense			
6.5					-			
7	7-8.5	---	-----	-----	SP - POORLY GRADED SAND (SP), brown			
7.5		5/5'			-			
8					-			
8.5	8.5-11	---	-----	-----	SW - WELL GRADED SAND (SW) with CLAY, moist, dense, fine to very			
9					- coarse sand			
9.5					-			
10					-			
10.5					-			
11	11-13.5	---	-----	-----	CL - SANDY LEAN CLAY (CL), brown (7.5YR 5/4), moist, stiff, clay			
11.5		5/5'			- with rip ~30-40%, fine to medium sand			
12					-			



PROJECT NUMBER

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BORING ID:

40C001SB

Sheet 9 of 9

SOIL BORING LOG

PROJECT: Beale AFB-AOC 73 Triad Investigation

LOCATION: ~350' N of Warren Shingle Road, ~300°W of Hutchinson

ELEVATION: 110.8

NORTHING: 2168112.5

EASTING: 6730631.7

DRILLING CONTRACTOR: Water Development Corp., Zamora, CA

DRILLING METHOD AND EQUIPMENT USED: Hollow Stem Auger Auger CME 85

WATER LEVELS: 45.35' from TOC

START: 10/13/2004

END: 10/14/2004

LOGGER: R. Pexton

DEPTH BGS (ft)	INTERVAL (ft)		STANDARD PENETRATION TEST RESULTS	CORE DESCRIPTION:		COMMENTS:
	RECOVERY	TYPE-# <small>SS-Split Spoon ST-Shelby Tube</small>		6-6-6 (in) (N)	SOIL NAME (USCS GROUP SYMBOL), COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	
99.5				-		
100		----	-----	-----	CLML - TD = 100'	
100.5					-	
101					-	